

CLAIMS

1. A stereolithographic shaping method used for manufacturing a shaped article on a shaping table, the stereolithographic shaping method comprising the steps of coating a liquid optically-curable resin onto the surface of a shaped article under manufacture, irradiating light onto the optically-curable resin, and curing a required portion of the optically-curable resin to form an optically-shaped resin layer, and repeating this process to sequentially laminate optically-shaped resin layers, wherein

the shaping table is supported so as to be able to control a posture position of the shaping table in an optional three-dimensional direction,

the optically-curable resin is blown onto a shaped article on the shaping table, thereby to coat the surface of the shaped article with the optically-curable resin in a predetermined film thickness, and

the optically-shaped resin layers are formed by controlling the posture position of the shaping table and by irradiating the light onto the optically-curable resin that has been coated on the surface of the shaped article.

2. The stereolithographic shaping method according to claim 1, further comprising the step of building an insert article having a three-dimensional structure into the shaped article.

3. The stereolithographic shaping method according to claim 1 or 2, wherein the optically-curable resin is a resin that can be cured with laser beams, and laser beams are used for curing this resin.

4. A stereolithographic shaping apparatus used for manufacturing a shaped article on a shaping table, the stereolithographic shaping apparatus comprising in combination:

a table supporting unit for supporting a shaping table that supports a shaped article, so as to be

able to control a posture position of the shaping table in an optional three-dimensional direction;

5 a coating unit section that is set with the table supporting unit, for controlling a posture position of the shaping table, and blowing a liquid optically-curable resin onto a shaped article formed on the shaping table, thereby to coat the optically-curable resin onto the surface of the shaped article; and

10 a curved-surface laminating unit section that is set with a table supporting unit that supports a shaped article coated with the optically-curable resin on the surface, for controlling a posture position of the shaping table, irradiating light onto the optically-curable resin that has been coated on the surface of the
15 shaped article, and curing a required portion of the optically-curable resin, thereby forming optically-shaped resin layers.

5. The stereolithographic shaping apparatus according to claim 4, further comprising a cleaning unit
20 section that is set with the table supporting unit, for controlling a posture position of the shaping table, and cleaning an uncured optically-curable resin that has been coated on the surface of the shaped article.

6. The stereolithographic shaping apparatus
25 according to claim 4 or 5, further comprising a flat-surface laminating unit section that is set with the table supporting unit, for controlling a posture position of the shaping table, coating a liquid optically-curable resin flat on the surface of a shaped article formed on
30 the shaping table, irradiating light onto the optically-curable resin, and curing a required portion of the optically-curable resin, thereby forming optically-shaped resin layers.

7. The stereolithographic shaping apparatus
35 according to claim 4 or 5, further comprising a conveying unit section for conveying the table supporting unit between adjacent unit sections, between unit sections

such as the coating unit section and the curved-surface laminating unit section or the like.

8. The stereolithographic shaping apparatus according to claim 4, wherein

5 the coating unit section includes:
 a set frame for supporting the table supporting unit; a rotation table for supporting the set frame, and rotating the table supporting unit at an optional position within a flat surface; an elevator
10 table for supporting the rotation table, and moving, up and down, the table supporting unit to an optional position; and a nozzle for blowing the optically-curable resin onto the shaped article.

15 9. The stereolithographic shaping apparatus according to claim 4, wherein

 the curved-surface laminating unit section includes:
 a set frame for supporting the table supporting unit; a rotation table for supporting the set
20 frame, and rotating the table supporting unit at an optional position within a flat surface; an elevator table for supporting the rotation table, and bringing up and down the table supporting unit to an optional position; and a light irradiating section for irradiating
25 light onto the optically-curable resin that has been coated on the surface of the shaped article.

10. The stereolithographic shaping apparatus according to claim 5, wherein

 the cleaning unit section includes:
30 a set frame, provided to be able to move up and down, for supporting the table supporting unit; a cleaning solution spreading section for spraying a cleaning solution toward a shaped article supported by the table supporting unit; and a tank for storing the
35 cleaning solution after cleaning.

11. The stereolithographic shaping apparatus according to claim 4, wherein

the table supporting unit includes:

a base supporting frame; a movable frame that is axially supported by the supporting frame in one pair of opposite frame sections; and a shaping table that is rotatably supported by the other pair of opposite frame sections of the movable frame.

12. The stereolithographic shaping apparatus according to claim 11, wherein

the shaping table is detachably supported by the movable frame.

13. The stereolithographic shaping apparatus according to claim 4, wherein

the optically-curable resin is a resin that can be cured with laser beams, and a laser light source is provided as a light source for curing the optically-curable resin.

14. The stereolithographic shaping apparatus according to claim 4, wherein

the shaped article has built-in an insert article having a three-dimensional structure.